**Commonwealth of Kentucky**
**Division for Air Quality**

# *PERMIT STATEMENT OF BASIS*

TITLE V (DRAFT PERMIT) NO. V-06-015
3M CYNTHIANA
CYNTHIANA, KY.
JULY 24, 2006
MARK LABHART, REVIEWER

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| SOURCE I.D. #: | 021-097-00021 |
| SOURCE A.I. #: | 1752 |
| ACTIVITY #: | APE20040001 |

**SOURCE DESCRIPTION:**

3M makes note pads and pressure sensitive tape by coating paper and film. This is the initial issuance of a source wide Title V permit.

The main sources of emissions are the 5 existing web-coating lines and associated supporting equipment. All the existing web-coating lines and various individual applicators associated with these lines are subject to 401 KAR 51:017, Prevention of Significant Deterioration of air quality (PSD), and all have undergone BACT analysis. The web coating lines are regulated too under NSPS, 40 CFR 60 Subpart RR; MACT Regulation 40 CFR 63 Subpart JJJJ, and State Regulations 401 KAR 59:210, 401 KAR 59:212, and 401 KAR 63:020. There are also Synthetic Minor limitations that have been subsumed into this permit.

Most other equipment at 3M can either be classified as supporting equipment for the coating lines or as insignificant activities. All dedicated coating line supporting equipment is defined by the MACT regulation Subpart JJJJ as part of the affected facility and hence this equipment is covered by the NESHAP. Much of this supporting equipment was permitted and installed with the coating lines or with later coating line additions and are regulated by BACT or Synthetic Minor limits as well.

There are facility boilers, large storage tanks, a paint booth, a polypropylene extrusion line, and some parts cleaning tanks that are permitted separately from the web-coating lines because of specific regulations applicable to these facilities that are not applicable to either the web-coating lines or to the other supporting equipment.

Last with this permit action the source is proposing to add a sixth coating line referred to as the Cobra line. The Cobra line will use only water-based coatings and will operate uncontrolled. The new line is smaller scale than any of the previous coating lines. Potential emissions of VOC are 35.7 tpy which is less than the significant emissions level for NSR. BACT analysis was not required.

**GENERAL COMMENTS:**

1. The permit allows 3M to show compliance with multiple regulations by selecting and demonstrating compliance with the most stringent regulation applicable to a given facility. This works well for BACT, MACT, and NSPS requirements as these regulations all have similar constraints (averaging times, control system requirements, etc). In other cases there are no direct parallels between the regulations and compliance must be demonstrated independently. Specifically, any RACT limitations are to be demonstrated daily, and this short averaging time cannot be equated to the monthly averaging period specified by the Federal regulations, therefore RACT compliance must be demonstrated independently from BACT, MACT, and NSPS.

2. EPA methods and recommendations were followed when comparing applicable regulations and emission limitations. The most important points are listed below.

   - Limitations for specific pollutants may be subsumed by limitations on a broader class of pollutants. Almost all of the organic HAP used and emitted by printers[1] are also VOC, so in some cases VOC limits may suffice for limiting organic HAP. [2]
   - Control systems are generally equally effective in controlling organic HAPs and controlling VOCs at printing[1] facilities. [2]

     (1) Although only a fraction of the coatings in use at 3M are specifically inks or otherwise used in printing operations, the potential HAPs emitted by this facility are all volatile organic HAPs or VHAP. Control devices in use at 3M should be equally effective at controlling both the VOC and HAP emitted from the web-coating lines.

     (2) Reference: TECHNICAL SUPPORT DOCUMENT (TSD) FOR TITLE V PERMITTING OF PRINTING FACILITIES, Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711, January 2005.

3. The operating limits established in the permit for the coating equipment are distilled from the various regulations with most of the limitations coming from the MACT, Subpart JJJJ. Specific operating limitations are listed in § 63.3321. Unfortunately, this section is very general, lacking sufficient qualifications or exemptions. Basically this section requires operating limitations for controlled workstations to be established by performance test. This section does allow for the testing exemption for solvent recovery devices for which compliance is demonstrated by a liquid/liquid material balance. Yet, there are no performance test exceptions in this section for those facilities utilizing continuous emission monitors, [exempted from testing by § 63.3360(b)(1)] or for capture systems that are permanent total enclosures.

   The logic in constructing the permit operating limitations for controlled workstations is based on principles that are prevalent in the MACT rather than exact citations. Fortunately there is sufficient redundancy in the MACT that the intention is clear. Refer specifically to § 63.3321(a), TABLE 1, § 63.3350(b), § 63.3370(e), (f), (g), (h), (i)(2), (i)(2)(i)&(ii), (j)(3), and (k)(1)(iii). From these various citations it is clear that for all controlled work stations the source shall;
   A. Perform an initial compliance demonstration(s).
   B. Establish operating parameters to be monitored.
   C. Operate the control equipment and monitor the established parameter(s) whenever the process is in operation.

D. Maintain all monitoring equipment in good condition.

4. Operating Limitations for existing uncontrolled workstations are covered in the permit by reference to the BACT requirements. "The source shall operate in accordance with the application submitted to the Cabinet …", (401 KAR 51:017 Section 16, effective 7-14-04; 401 KAR 51:017 Section 17, eff. 4-14-88; 401 KAR 51:017 Section 17, eff. 3-12-97). All existing coating lines are subject to 401 KAR 51:017. If a coating line was originally permitted to operate uncontrolled using low VOC coatings, then the BACT analysis provides a maximum limit on the VOC content of the coatings that the source can use.

5. Coating lines 1R, 2R, 3R, 4R, and 5R were installed prior to September 13, 2000, which makes them existing sources under the MACT, Subpart JJJJ. Some individual applicators, (3R-1, 3R-13, and 4R-PC1) have been replaced at a later date, however these individual applicators are considered as replacement parts of existing coating lines.

   § 63.3310 Definition - *Existing affected source* means any affected source the construction or reconstruction of which is commenced on or before September 13, 2000, and has not undergone reconstruction as defined in § 63.2.

   § 63.2 Definition - *Reconstruction*, unless otherwise defined in a relevant standard, means the replacement of components of an affected or a previously nonaffected source to such an extent that:

      (1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable new source;

   The capital cost of any of the replacement applicators (3R-1, 3R-13, and 4R-PC1) is below 50% of the cost of the coating line. Hence no reconstruction has occurred.

6. For purposes of compliance demonstration of Subpart JJJJ the source can group together multiple coating lines as an affected source.

   § 63.2 Definition - *Affected source*, for the purposes of this part, means the collection of equipment, activities, or both within a single contiguous area and under common control for which a section 112(d) standard is established, (i.e. Subpart JJJJ).

7. 3M has chosen Continuous Emissions Monitors (CEM), for the solvent recovery systems. CEM are not used with any of the oxidizers, so the term CEM, as used in this permit refers specifically to the monitoring systems for the solvent recovery systems. Continuous Parameter Monitoring Systems (CPMS), as referred to in the permit means the monitoring system for the thermal oxidizers, and/or monitoring systems for capture efficiency. Continuous Monitoring Systems (CMS), as used in the permit generally refers to any monitoring system.

8. 40 CFR 60, Subpart RR requires the monitoring of the solvent recovery systems by a liquid/liquid material balance. Some of the materials used by 3M at workstations controlled by the carbon adsorbers contain water-soluble solvents. These water-soluble components are not reclaimed, as steam is used to regenerate the carbon beds. The Division previously granted 3M the option of demonstrating control efficiency of the solvent recovery units by using the methods of 40 CFR 60, Subpart SSS, which is the NSPS for magnetic tape coating. Subpart SSS allows use of CEM for solvent recovery units, which is the method 3M had argued was the best choice

for compliance demonstration at their facility.
Since the MACT, Subpart JJJJ also allows use of CEM for compliance demonstration of a solvent recovery unit, and since Subpart JJJJ is applicable to 3M, it is reasonable that 3M should now follow the compliance procedures for their solvent recovery units as listed in the Subpart JJJJ rather than use compliance method from a non-applicable regulation, (Subpart SSS).

Also it is reasonable to consider that compliance demonstration using the MACT requirements for CEM as applied to solvent recovery units, should be a reasonable substitute compliance demonstration under NSPS, Subpart RR based on the following arguments:

A. The original argument made by 3M regarding the loss of water-soluble solvents is still valid.
B. NSPS, subpart SSS regulates the same criteria pollutant (VOC) as Subpart RR and the use of CEM is acceptable under this regulation.
C. The Division previously determined that using CEM for the solvent recovery systems was acceptable alternative monitoring method for 3M to demonstrate compliance with Subpart RR.
D. MACT regulation subpart JJJJ is a much newer regulation than the NSPS subpart RR. Therefore the MACT should reflect the latest, newer, or better understanding of emission control technology, and the use of CEM is acceptable for MACT compliance demonstration.

9. Any coating line applicator installed prior to 6-24-92 is exempt from regulation 401 KAR 59:210 (effective 6-24-92), per 59:210, Section 2 (2), except that control devices and procedures required at the time it commenced shall continue to be operated and maintained. This exemption applies to following applicators.

| Applicator | Date Commenced |
|---|---|
| 1R1 | Aug. 85 |
| 1R2 | Aug. 85 |
| 1R3 | Aug. 85 |
| 2R1 | Aug. 85 |
| 2R2 | Aug. 85 |
| 2R3 | Aug. 85 |
| 3R-2 | Jun. 89 |
| 4R-PC2 | Aug. 91 |
| 4R-F | Aug. 91 |

Construction of all applicators listed above commenced between the dates of 9-22-82 and 6-24-92. Therefore control devices and procedures as required by 401 KAR 59:210, effective 9-22-82 shall continue to be operated and maintained.

Despite the exemption, there are no differences in the operational requirements between the exempted applicators and the non-exempt applicators. All requirements currently applicable to the applicators subject to 59:210, effective 6-24-92, were in place and unchanged since 9-22-82 when the previous version of 59:210 was in effective.

10. **401 KAR 59:050. New storage vessels for petroleum liquids,** does not apply to the #2 fuel oil tanks. The definition of petroleum liquids in this Regulation specifically exempts #2 through #6 fuel oils.

11. **401 KAR 59:185. New solvent metal cleaning equipment,** applies to three (3) cold cleaners (PCT1-PCT3) at this facility which are used for general cleaning and maintenance. These (3) cold cleaners were originally installed in 1984, and are included in the BACT analysis for installation of the 1R and 2R lines. There is one additional cold cleaner located in the 3R bay that is used exclusively for clean up of the 3R line. Emissions from this parts cleaning tank are the sole result of the web-coating activities, hence this tank is considered part of the 3R line and emissions from this parts cleaning tank will be regulated, monitored and reported under the webcoating rules.

12. **40 CFR Part 60, Subpart Kb - Standards of Performance for Volatile Organic Liquid Storage Vessels** applies to all storage tanks at 3M with a capacity greater than 40 cubic meters (10,567 gallons. However there are no requirements with this regulation for tanks < 75 cubic meters capacity (19,813 gallons) other than recordkeeping. The largest tanks at 3M are 19,000 gallon.

13. **40 CFR Part 63, Subpart KK – National Emission Standards for Hazardous Air Pollutants From the Printing and Publishing Industry**, is applicable to the new construction, (Cobra Line). The 5R line has rotogravure print stations which could potentially subject 5R to Subpart KK, however §63.821(a)(2)(ii) provides an exemption when the mass of materials used on the designated printing stations is less than 5% of the total mass of material used on the coating line. Ink used on the 5R line is much less than 5% of the total material hence the 5R line can be regulated under Subpart JJJJ. Printing is much larger percentage of the new cobra line so it will not meet this exemption and must be regulated under Subpart KK.

    Note: Under Subpart KK there are no separate requirements for new or existing sources.

14. **40 CFR Part 63, Subpart EEEE** – Is applicable to this source, but there are no applicable requirements associated with the affected facilities from this regulation other then the initial notification requirements and the semiannual compliance report.

    § 63.2346 (h) - Emission sources that are part of the affected source as specified in Sec. 63.2338, but which are not subject to the provisions of paragraphs (a) through (d) of this section, are only subject to the compliance reporting requirements specified in Sec. 63.2386(d).

    § 63.2386 (d) - Subsequent Compliance reports must contain the information in paragraphs (c)(1) through (10) of this section and, where applicable, the information in paragraphs (d)(1) through (3) of this section.

    The applicable items from § 63.2386 (c) are listed below. None of the items from § 63.2386 (d) are applicable to this source.

| | |
|---|---|
| (c)(1) | Company name and address. |
| (c)(2) | Statement by a responsible official, including the official's name, title, and signature, certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete. |
| (c)(3) | Date of report and beginning and ending dates of the reporting period. |

| | |
|---|---|
| (c)(9) | A listing of all emission sources that are part of the affected source but are not subject to any of the emission limitations, operating limits, or work practice standards of this subpart. |

None of the items above will change over the life of the permit except for the dates of the reporting period unless there is new construction. The Division believes based on language in the preamble to the rule that it was not the EPA's intention for a source to submit semi-annual reports when there are no applicable requirements. Nevertheless, the present form of the final rule does make this requirement.

§ 63.2346 (c) - Equipment leak components. For each pump, valve, and sampling connection that operates in organic liquids service for at least 300 hours per year, you must comply with the applicable requirements under 40 CFR part 63, subpart TT (control level 1), subpart UU (control level 2), or subpart H. Pumps, valves, and sampling connectors that are insulated to provide protection against persistent sub-freezing temperatures are subject to the "difficult to monitor" provisions in the applicable subpart selected by the owner or operator. This paragraph only applies if the affected source has at least one storage tank or transfer rack that meets the applicability criteria for control in Table 2 to this subpart. (Since there are no storage tanks or transfer racks subject to any control requirements, the length of time in service for any equipment leak component is not relevant).

15. **40 CFR Part 63, Subpart HHHHH – Miscellaneous Coating Manufacturing**, is not applicable to this source. Miscellaneous Coating Manufacturing includes process vessels, storage tanks for feedstocks and products, components such as pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, and instrumentation.

    Operations affiliated with the coating MACT, Subpart JJJJ are not intended to be included under the Miscellaneous Coating Manufacturing MACT. Affiliated operations include mixing or dissolving of coating ingredients, coating mixing for viscosity adjustment, color tint or additive blending, pH adjustment, cleaning of coating lines and coating line parts; handling and storage of coatings and solvent; and conveyance and treatment of wastewater. The activities at 3M best fit the description of affiliated operations under the Subpart JJJJ. There are other activities at this source (such as tanks and transfer rack) that would be covered under Subpart HHHHH, however it does not make sense to apply this rule if there are no operations defined as Coating Manufacturing occurring at 3M. The main components of the coating materials in use at 3M are shipped on-site as pre-blended compounds, hence all associated activities are limited to viscosity adjustment, additive blending, etc.

16. **Comparison of Subpart EEEE verses Subpart HHHHH –** From a practical standpoint, it does not matter whether Subpart EEEE or Subpart HHHHH is applicable to the source as neither regulation has any applicable control requirements, emission limits, or work practice standards for this particular source.

    A. There are 2 large storage tanks used for HAP, each is 15,000-gallon capacity. One is used for toluene (vapor pressure ~ 0.5 psi @ 68°F) and the other methyl isobutyl ketone (vapor pressure ~ 0.3 psi @ 68°F). These are both "Group 2" storage tanks based on size and the vapor pressure of the HAP liquids stored. Group 2 storage tanks require no additional control. (Subpart HHHHH)

B. The transfer rack for unloading HAP to the facility handles less than 3.0 million gallons per year, thus no control is required. (Subpart HHHHH)

C. Equipment leak components in organic liquids service must be included in a leak detection and repair (LDAR) program. For the LDAR to be applicable the leak components in HAP service must be in operation for more than 300 hours per year. (Subpart HHHHH)

17. **40 CFR Part 63, Subpart DDDDD – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters** is applicable to the four (4) boilers at this facility. Two (2) are classified as large existing gaseous fuel units and the other (2) is classified as a large liquid fuel units. There are no requirements for these units except for the initial notification requirement, per § 63.7506 (b).

A. § 63.7506 (b) - The affected boilers and process heaters listed in paragraphs (b)(1) through (3) of this section are subject to only the initial notification requirements in § 63.9(b) (i.e., they are not subject to the emission limits, work practice standards, performance testing, monitoring, SSMP, site-specific monitoring plans, recordkeeping and reporting requirements of this subpart or any other requirements in subpart A of this part).
(1) Existing large and limited use gaseous fuel units.
(2) Existing large and limited use liquid fuel units.

18. **40 CFR Part 60, Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units,** is applicable to EP 32, boiler #4 only. Construction of the other (3) boilers commenced prior to June 9, 1989, hence Subpart Dc is not applicable to these (3) boilers. Boiler #4 was originally permitted in 1991. The sulfur dioxide limitations in this permit (C-91-056) do not correspond with emission limitations either from the Federal Regulation or the applicable State Regulation 401 KAR 59:015. Investigation of the source of this discrepancy revealed that the emission limitations were reduced below the regulatory requirement based on the rational that total $SO_2$ emissions could never exceed 40 tpy and thus subject the boiler to PSD if the regulatory emission limitation was scaled down. Stated differently, the emission limitation was assumed to be the boiler PTE, which it is not. Ironically, the boiler was at the time being permitted as part of a major modification subject to PSD. As part of the pre-construction BACT analysis (for VOC), the PTE for all pollutants from the proposed modification were calculated and it was determine based on PTE that this construction was not a major modification in regards to $SO_2$. The $SO_2$ emission limitation being used in the Title V permit is from the Federal Regulation. A comparison was made of the $SO_2$ emission limitations from both the State and Federal Regulations, and NSPS was found to be more stringent.

19. **40 CFR Part 63, Subpart MMMM – National Emission Standards for Hazardous Air Pollutants: Surface Coating of Miscellaneous Metal Parts and Products**, is not applicable to the paint spray booth, EP09 per § 63.3881(c)(2).
§ 63.3881 (c) This subpart does not apply to surface coating or a coating operation that meets any of the criteria of paragraphs (c)(1) through (17) of this section.
(c)(2) Surface coating operations that occur at research or laboratory facilities, or is part of janitorial, building, and facility maintenance operations, or that occur at hobby shops that are operated for noncommercial purposes.

20. **401 KAR 59:225. New miscellaneous metal parts and products surface coating operations.**, is not applicable to the paint spray booth, EP09, per Section 2(2).

> § 2 (2) - Each affected facility commenced on or after the classification date (February 4, 1981) defined in Section 1 of this administrative regulation but prior to the effective date (eff. 6-24-92) of this administrative regulation which is part of a major source located in a county or portion of a county designated attainment or marginally nonattainment for ozone in 401 KAR 51:010 shall be exempt from this administrative regulation except that control devices and procedures required at the time it commenced shall continue to be operated and maintained.

Construction commenced for the paint spray booth in November 1985. At that time, regulation 401 KAR 59:225, effective 2-4-81 was applicable. Section 5 (3) of the older regulation provided exemption from control for the spray booth.

> § 5 (3) - Any affected facility shall be exempt for the provision of Section 3 of this regulation if the total volatile organic compound emissions from all affected facilities subject to this regulation are less than or equal to twenty (20) tons per year.

PTE from the spray booth is 6.73 tpy, and this one spray booth was the only affected facility at the source subject to this regulation. Accordingly the total VOC emissions are less than twenty (20) tpy.

21. **401 KAR 63:021. Existing sources emitting toxic air pollutants**, is not applicable to the source. Previous 3M permit F-98-019 contained (2) requirements from regulation 401 KAR 63:022 as follows;
    a. Ammonium Hydroxide content of the coatings shall not exceed 3% by weight, and
    b. Ammonia emissions shall not exceed 6.54 lbs/hr for the entire source.

    3M elected to provide dispersion modeling using the ISC-PRIME model which demonstrates that the potential ammonia emissions are far below California's Office of Environmental Health Hazard Assessment (OEHHA) thresholds for either chronic non-cancer effects or 1-hour acute effects. Per 401 KAR 63:021 Section 1, the source has demonstrated that these conditions are no longer necessary to protect human health and the environment, therefore these requirements will not be included in the Title V permit.

**LINE SPECIFIC COMMENTS:**

1. **1R and 2R Lines**
   **High Solvent Coatings**
   The 1R and 2R lines (EP11a and 11b) were originally permitted (C-85-83) to use solvent-based coatings and control systems. BACT for the 1R and 2R lines was determined to be 90% overall control (application received 12/27/84). The MACT regulation Subpart JJJJ requires a 95% overall control for existing sources which is more stringent than BACT or NSPS for the 1R and 2R lines. Demonstration of compliance with MACT will therefore demonstrate compliance with BACT and NSPS when these lines are operating in the controlled mode using the solvent-based coatings.

The potential to emit for the 1R and 2R lines has also been reduced to correspond with the applicability of the MACT.

Previous PTE from BACT – based on 90% overall control

| | | |
|---|---|---|
| 1R Line | 6090 tpy * 0.1 = | 609 tpy |
| 2R Line | 6090 tpy * 0.1 = | 609 tpy |
| Miscellaneous | | 59 tpy |
| Total from BACT | | 1277 tpy |

PTE as a result of application of MACT – based on 95% overall control

| | | |
|---|---|---|
| 1R Line | 6090 tpy * 0.05 = | 304.5 tpy |
| 2R Line | 6090 tpy * 0.05 = | 304.5 tpy |
| Miscellaneous | | 59 tpy |
| Total from BACT | | 668 tpy |

**Addition of applicators 1R-T1, 1R-T2, 2R-T1, 2R-T2, 2R-2-2, and 2R-4.**
An application was received on Aug 3, 1994 for the addition of the 1R-T1 applicator. This applicator was permitted by F-94-011 with synthetic minor limitations on the raw material throughput and limitations on the VOC content of the materials that could be used.

An application was received on Jan. 26, 1996 for the addition of precoater #3 for the 2R line. This applicator was designated 2R-4. This applicator was permitted by S-96-038.

An application was received on Feb. 2, 1996 for the addition of 3 more applicators, 1R-T2, 2R-T1, and 2R-2T. These applicators were permitted by S-96-137.

An application was received on Apr. 22, 1996 for the addition of a precoater to the 2R line. This precoater was designated 2R-2-2, and it was permitted by F-96-022 with synthetic minor limitations in the form of limits on the hours of operation, and the maximum line speed. This applicator was never installed.

**Low Solvent Coatings**
An application was received Feb. 24, 1998 for a modification to the existing 1R and 2R lines (EP11a and 11b). With this action all previous permits for the 1R and 2R coating lines including the permits issued for the various individual applicators were subsumed under the new permit, F-98-019. The modification of the coating lines consisted of substitution of low VOC materials and running the lines un-controlled. Potential emissions from the uncontrolled operation were calculated to be 512.6 tpy, an increase of 140.3 tpy over previous years average actual. This required another BACT analysis which was completed in Jan. 1998. BACT for the new operating scenario was determined to be an emission limit of 0.14 lbs VOC / lb coating solids applied as calculated on a weighted average basis for one calendar month for both the 1R and 2R lines when using the low solvent coatings. The BACT limit is more stringent than NSPS, Subpart RR (0.2 lbs VOC / lb coating solids), or the MACT, Subpart JJJJ (0.2 lbs HAP / lb coating solids), therefore compliance with the MACT and NSPS is demonstrated when the source is in compliance with BACT.

**2. 3R Line and Additions**

Permit VF-01-004 was developed based on the assumption that the PTE for the existing 3R line (prior to 2001) was 49.12 lb/hr and 215.15 tons/yr. Unfortunately 215.15 tpy is the potential emissions of some, (but not all) of the affected facilities permitted with the 3R line by C-89-052 and covered under the original BACT analysis done in November 1988. The BACT analysis and the equipment permitted for construction by C-89-052 had the potential of 219 tpy. With the addition of equipment to the 3R line in 2001, 3M elected to take a Synthetic Minor limit. The synthetic minor limit was established based on the average actual emissions of the 3R line for the two previous years, 1999 and 2000 plus an additional allowance for the new equipment.

15.5 tpy (average actual) + 36 tpy (minor modification) = 51.5 tpy.

This overall emission limitation of 51.5 tpy and the 0.019 (lbs VOC / lb coating solids) from the original BACT analysis are now the emission limitations for the 3R line. Other emission limitations from VF-01-004 are being discarded because these limitations were based on incorrect data or assumptions. None of these changes are intended as a re-determination of BACT, nor do they result in any relaxation of the original BACT limitations. These are administrative changes only made to correct, clarify or simplify the permit language.

| **Previous Emission Limitation** | **Source** | **New Emission Limitation** |
|---|---|---|
| 0.019 lbs VOC / lb coating solids | BACT analysis, November 1988 | 0.019 lbs VOC / lb coating solids |
| 51.5 tpy, 12-month rolling total | Synthetic Minor Limitation (application received June 18, 2001) | 51.5 tpy, 12-month rolling total |
| 90% overall VOC control | In this specific case BACT, (0.019 lbs VOC/ lb coating solids) is achieved with a combination of coating formulation and control. A 90% overall control system does not guarantee the facility will meet BACT. Nor is this 90% overall control limitation required for NSPS, Subpart RR as the coating formulations intended to be used to achieve BACT have such low VOC content that they are exempted from control by NSPS. (See also discussion in **3R Line and NSPS** below). Hence, this 90% overall control appears to be an assumption in calculation of the BACT emission limitations rather than a specific limitation in itself. As a "stand alone" limitation it is ineffective because it is not necessary to meet any regulatory limitation (NSPS or MACT), and meeting this limitation does not guarantee compliance with all the regulations from which this limitation originated, (BACT). | None |
| 49.12 lbs/hr | Unknown?<br>(This number can be found in the permit C-89-052, but it is not inclusive to BACT). | None |

| | | |
|---|---|---|
| 215.15 tons/year | Unknown?<br>(This number can be found in the permit C-89-052, but it is not inclusive to BACT). This number is not listed as a specific emission limit in the 2001 permit VF-01-004, however it is stated on p.6 of this permit that emissions in excess of 215.15 tpy will violate the original BACT requirement. The correct number should have been 219 tpy. | None |
| **3R Line and NSPS**<br>NSPS for the 3R line is 90% overall control, <u>OR</u> the VOC input to the facility must be not more than 0.2 lbs VOC / lb coating solids.<br>BACT was calculated as VOC input to the facility is 0.19 lbs VOC /lb coating solid (shows compliance with Subpart RR), <u>AND</u> the overall control efficiency is 90%, (also shows compliance with Subpart RR).<br>Demonstration of compliance with the BACT, therefore guarantees compliance with Subpart RR, because the overall control must be 90% or greater, the VOC input to the facility must be less than 0.2 lbs VOC / lb coating solids, or both of these factors must be true to meet the BACT emission limitation. | | |
| **3R Line and MACT**<br>The BACT emission limit of 0.019 lbs VOC / lb coating solids is also lower than the MACT, Subpart JJJJ emission limitation for existing sources, (HAP no more than 20 weight percent of the coating solids). Assuming all VOC emitted is VHAP, compliance with BACT still demonstrates compliance with the MACT. | | |

3. **4R Line**

The 4R line was originally permitted in 1991 (C-91-056) and underwent BACT analysis at that time (application received April 9, 1991). BACT for the 4R line was determined to be 98% overall control.

In July 1997 an application was received to increase production on the 4R line. The increased production was considered a major modification and a new BACT analysis was submitted along with the application. BACT for the modification was determined to be 98% overall control. In addition to the overall control requirement 3M proposed additional BACT limitations on VOC emissions of 2,115 lb/day and 386 tpy. However the potential emissions calculated in the new BACT analysis was based only on emissions from the coating line, and did not include the supporting equipment that underwent BACT and was originally permitted with the 4R coaters. This oversight was corrected in permit F-98-003 with the emission limit set at 64,664 lbs/month, (approx. 2,126 lb/day or 388 tpy).

The 4R-PC1 applicator was replaced in January 2004. The new applicator uses water-based coatings and utilizes no control other than the low solvent coatings. Potential emissions from the replacement applicator result in a net decrease of the potential VOC emissions from the 4R line by 58.6 tpy making this replacement a minor modification under PSD. In the application for the modification the source proposed to meet the existing 1997 BACT emission limitation of 98% overall control for the entire 4R line. The source also requested a decrease in allowable emissions for the entire 4R line corresponding to the decrease in emissions from the 4R-PC1 applicator. Emission limits for the 4R line are 98% overall control as before, cleanup solvent usage limits of 620 gallons MEK and 360 gallons IPA per year, and a new maximum VOC emission limit of 329 tpy, 12-month rolling total.

4. **5R Line**
   The 5R line has 2 printing stations. Per regulation 401 KAR 59:210, Section 1, (4)(j), An affected facility which is capable of performing both paper coating and paper printing shall be considered as performing a paper printing operation subject to 401 KAR 59:212. Therefore the 5R line is subject to the RACT requirements of 59:212 instead of 59:210.

   The 5R line is uncontrolled. To show compliance with 59:212 the permittee must meet one of the exemptions of 59:212, Section 6.

5. **Cobra Line**
   The Cobra Line will use only low solvent coatings and inks. None of the workstations are controlled. Nearly 70% of the PTE of the new press is from print stations which makes the Cobra line subject to the printing and publishing regulations 40 CFR 63, Subpart KK and 401 KAR 59:212. To show compliance with 59:212 the permittee must meet one of the low-VOC coating exemptions of 59:212, Section 6.

   Comparing Part 63, Subpart KK with Part 60, Subpart RR there is a similar compliance options for both regulations.
   - Subpart KK - HAP emissions shall be no more than 20 percent of the mass of solids applied for the month.
   - Subpart RR – VOC emissions not more than 0.20 kg VOC/kg of coating solids applied.

   As discussed above the HAP emitted from printing and publishing is virtually 100% VOC. If the total VOC emitted is less than 20% of the coating solids applied, then the total HAP emissions will always be 20% or less of the coating solids applied. The Subpart RR requirements are more stringent. Compliance with Subpart KK can be assumed if the permittee shows compliance with the emission limits of 40 CFR 60, Subpart RR.

**EMISSION AND OPERATING CAPS DESCRIPTION:**

The source has various equipment subject to either BACT or Synthetic Minor limitations as well as other applicable State and Federal regulations. Emission limitations range from daily average limits on VOC emissions from the applicable State applicable regulations (RACT), to 12-month rolling total emissions limitations taken as a Synthetic Minor limitation or as a condition of BACT.

**PERIODIC MONITORING:**

The source will submit semiannual compliance reports of any excess emissions; monitoring systems performance reports; any deviations of monitored parameters from reference values; failures to comply with the startup, shutdown, and malfunction (SSM) plan for control devices; and the nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.

**OPERATIONAL FLEXIBILITY:**

3M makes many different products that require different operational configurations of the webcoating lines. Not every applicator associated with a given webcoating line is in operation for

each product made. Further, some of the applicators can be operated with or without an associated emission control device. For each applicator or coating line that has an associated emission control device, the source has provided BACT analysis for both the controlled and uncontrolled operating modes. Operational flexibility is also built into the applicable NESHAP which allows sources the choice of using all compliant coatings or control of emissions in order to achieve compliance.

**CREDIBLE EVIDENCE:**

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.